CLAIMS

1. A liquid crystal display comprising: an in-plane switching liquid crystal panel containing a liquid crystal layer whose alignment orientation changes according to an electric field in parallel with a surface of a substrate; a first polarizing plate and a second polarizing plate disposed sandwiching the liquid crystal panel therebetween; a first optical film inserted between the first polarizing plate and the liquid crystal panel; and a second optical film inserted between the second polarizing plate and the liquid crystal panel, wherein

the first optical film includes: a retardation film A1 having a relation of $nz > nx \geq ny$; and a retardation film B having in-plane retardation (Re) in the range of from 200 to 300 nm, a relation of $nx > nz > ny$ and satisfying Nz coefficient in the range of $0.3 < Nz < 0.7$, in which three-dimensional refractive indices are controlled;

the second optical film includes a retardation film A2 having a relation of $nz > nx \geq ny$; and

the slow axis of the retardation film B is in parallel with or perpendicular to the absorption axes of the first and second polarizing plates,

where, in each of the films, the direction along with the in-plane refractive index in the film plane is maximized is defined as the X axis, the direction perpendicular to the X axis is defined as the Y axis, the direction of the thickness of the film is defined by the Z axis, and refractive indices in each axial directions at 550 nm are defined as nx, ny and nz, respectively, and the thickness of the film is defined as d (nm), the in-plane retardation (Re) and Nz are given by the following equations:

in-plane retardation (Re) = $(nx - ny) \times d$ and

$Nz = (nx - nz)/(nx - ny)$.

2. The liquid crystal display according to claim 1, wherein the first polarizing plate and the second polarizing plate each have a protective film on both surfaces of a polarizer,

retardation in the thickness direction (Rth_1) of the protective film applied on the liquid crystal panel side of the first polarizing plate and retardation in the thickness direction (Rth_2) of the retardation film A1 satisfy the following relation: $0 \leq ||Rth_1| - |Rth_2|| \leq 15$ nm, and

retardation in the thickness direction (Rth_3) of a protective film applied on the liquid crystal panel side of the second polarizing plate and retardation in the thickness direction (Rth_4) of the retardation film A2 satisfy the following relation: $0 \leq ||Rth_3| - |Rth_4|| \leq 15$ nm,

where, in each of the films, the direction along with the in-plane refractive index in the film plane is maximized is defined as the X axis, the direction perpendicular to the X axis is defined as the Y axis, the direction of the thickness of the film is defined by the Z axis, and refractive indices in each axial directions at 550 nm are defined as nx, ny and nz, respectively, and the thickness of the film is defined as d (nm), the retardation in the thickness direction (Rth) is given by the following equation:

retardation in the thickness direction (Rth) = $(nx - nz) \times d$.

3. The liquid crystal display according to claim 1, wherein the retardation in the thickness direction (Rth_2) of the retardation film A1 and the retardation in the thickness direction (Rth_4) of the retardation film A2 each are in the range of from –10 to –150 nm.

4. The liquid crystal display according to claim 1, wherein

the retardation film A1 and/or the retardation film A2 include a liquid crystal polymer fixed in homeotropic alignment.

5. The liquid crystal display according to claim 1, wherein the first polarizing plate and the second polarizing plate each have a protective film on both surfaces of a polarizer,

the slow axis of the protective film applied on the liquid crystal panel side of the first polarizing plate and the absorption axis of the first polarizing plate are in parallel with or perpendicular to each other, and

the slow axis of the protective film applied on the liquid crystal panel side of the second polarizing plate and the absorption axis of the second polarizing plate are in parallel with or perpendicular to each other.

6. The liquid crystal display according to any of claims 1 to 5, wherein the first optical film is laminate of the retardation film A1 and the retardation film B in the order from the first polarizing plate side.